

EXPRESS EV 425039082 US

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITYTo:  
C/O THOMSON LICENSING INC.  
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PRINCETON, NJ 08540

PCT

JUL 7 2004

NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of Mailing  
(day/month/year)

02 JUL 2004

Applicant's or agent's file reference

PU020118

## IMPORTANT NOTIFICATION

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US03/10889

09 April 2003 (09.04.2003)

16 April 2002 (16.04.2002)

Applicant

THOMSON LICENSING S.A.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US

Mail Stop PCT, Attn: IPEA/US  
Commissioner for Patents  
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Form PCT/IPEA/416 (July 1992)

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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PU020118</b>	<b>FOR FURTHER ACTION</b>		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. <b>PCT/US03/10889</b>	International filing date (day/month/year) <b>09 April 2003 (09.04.2003)</b>	Priority date (day/month/year) <b>16 April 2002 (16.04.2002)</b>	
International Patent Classification (IPC) or national classification and IPC <b>IPC(7): H03H 7/30 and US Cl.: 375/233</b>			
Applicant <b>THOMSON LICENSING S.A.</b>			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.  
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand <b>17 November 2003 (17.11.2003)</b>	Date of completion of this report <b>22 June 2004 (22.06.2004)</b>
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer <b>MOHAMMAD GHAYOUR</b> Telephone No. (703) 305-3800 

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

☒ the international application as originally filed.☒ the description:

pages 1-15 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the claims:

pages 16-23, as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the drawings:

pages 1-2, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☐ the sequence listing part of the description:

pages NONE, as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☐ The amendments have resulted in the cancellation of:☐ the description, pages NONE☐ the claims, Nos. NONE☐ the drawings, sheets/fig NONE5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/US03/10889

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. STATEMENT

Novelty (N)	Claims 4, 7, 9-20, and 31-33	YES
	Claims 1-3, 5, 6, 8 and 21-30	NO
Inventive Step (IS)	Claims 4, 7, 9-20, and 31-33	YES
	Claims 1-3, 5, 6, 8 and 21-30	NO
Industrial Applicability (IA)	Claims 1-33	YES
	Claims NONE	NO

### 2. CITATIONS AND EXPLANATIONS

Claims 1-3, 5, 6, 8 and 21-30 lack novelty under PCT Article 33(2) as being anticipated by Sommer et al (US 6,240,133). As shown in figures 2-4 and 8, Sommer teaches a decision feedback equalizer for producing soft and hard decisions comprising feedforward filter (32), feedback filter (36) and slicer (40). See also abstract and column 3, line 21 to column 6, line 56.

Claims 4, 7, 9-20 and 31-33 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest, in combination, the arrangements of the feedforward filter, feedback filter, multiplexer first summing unit, second summing unit, slicer, lock detector, and mode switch in order to form a decision feedback equalizer (DFE) for processing a data signal and providing DFE output signals in accordance with any of a hard decision directed (dd) mode, a soft dd mode, and a blind mode as recited in claim 11 and further limitations of the dependent claims 4, 7, 9, 10, 12-20 and 31-33.

Claims 1-33 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

In response to the STATEMENT WITH RESPECT TO NOVELTY AND INVENTIVE STEP OF THE CLAIMS received on 19 April 2004, applicants traverse the First Written Opinion by arguing that figure 2 of Sommer et al ((US 6,240,133) teach "only the output signal of slicer 40 is applied to DFE section 36" and "the soft decision signal (Z<sub>i</sub>) is not applied to DFE section 36." Thus, Sommer et al fail to teach an equalizer having hard decision direct mode and soft decision direct mode as claimed. However, the examiner respectfully does not agree. As shown in figure 2, Sommer et al teach the soft decision output signal (Z<sub>i</sub>) is feedbacked to the DFE section 36 via the error calculator (38). That is, the soft decision output signal is also used for determining the output signals of the equalizer. Based on this rationale, the opinion is maintained.